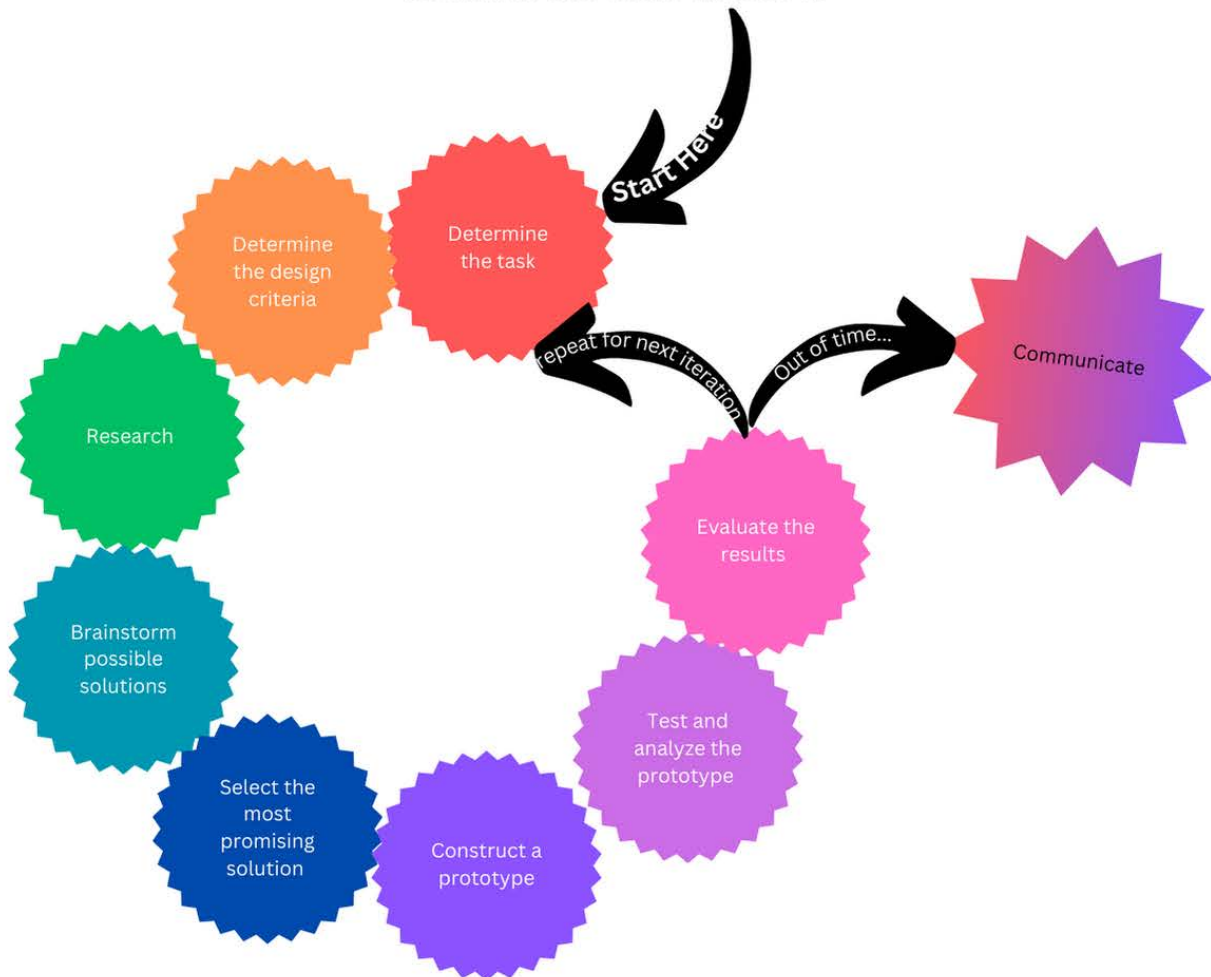


The Engineering Design Process

A SPECIFIC AND ITERATIVE SET OF STEPS USED TO REFINE POTENTIAL SOLUTIONS TO ENGINEERING CHALLENGES.

There are 8 basic steps which are repeated until the best solution possible has been found in the time allotted.



STEP 1 | DETERMINE THE TASK

This is usually provided for you on the project assignment page.

STEP 2 | DETERMINE THE DESIGN CRITERIA

Read the project description fully, identifying the requirements and constraints.

STEP 3 | RESEARCH

Generate questions, such as what solutions already exist and what physics applies. Find answers online or in your notes, recording the sources.

STEP 4 | BRAINSTORM

Generate ideas and develop as many solutions as possible (best done with a team).

STEP 5 | SELECT A PROMISING SOLUTION

Compare your best ideas, select one solution and make a plan to move forward with it.

STEP 6 | BUILD A PROTOTYPE

Construct a model that meets the constraints and requirements.

STEP 7 | TEST AND ANALYZE

Design a reliable experiment to collect data that can be used to measure the effectiveness of the prototype.

STEP 8 | EVALUATE THE RESULTS

Determine if the prototype successfully and reliably completed the task. Go back to step 3, using this as a source of new questions.

REITERATE AS NEEDED, MOVING THROUGH THE ENTIRE PROCESS A MINIMUM OF 3 TIMES. YOU ARE ONLY "DONE" WHEN YOU RUN OUT OF TIME.

SHARE AND COMMUNICATE

Present your design(s), reasoning, process, and the results. This may be in written, oral, or visual format.